

# SMBJ / SMCJ Series



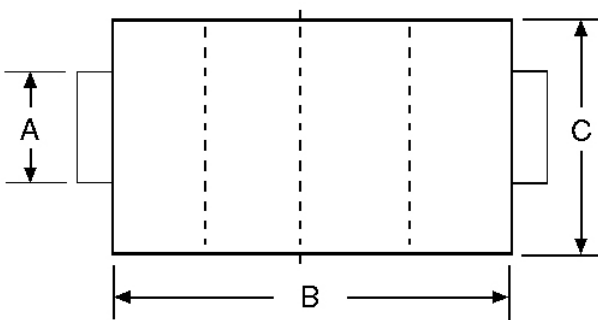
## Surface Mount Voltage Suppressors

### TRANSIENT VOLTAGE SUPPRESSOR



#### Features:

- For surface mounted applications in order to optimise board space.
- Low profile package.
- Built-in strain relief.
- Glass passivated junction.
- Excellent clamping capability.
- Low inductance.
- Repetition Rate (duty cycle) : 0.05% (SMCJ).  
: 0.01% (SMBJ).
- Fast response time : typically less than 1.0ps from 0 volts to BV minimum.
- Typical  $I_D$  less than  $1\mu A$  above 10V.
- High temperature soldering : 250°C/10 seconds (SMCJ).  
: 260°C/10 seconds (SMBJ).



#### Dimensional Table

Rating (W)	Type	Dimensions		
		A	B	C
600	SMBJ	2.11	4.57	3.94
1500	SMCJ	3.15	7.11	6.22

Dimensions : Millimetres

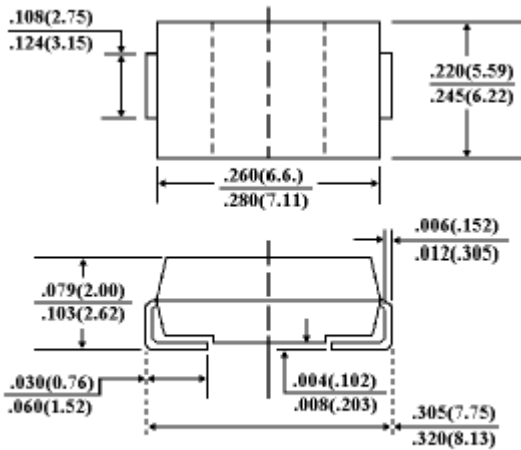


# SMBJ / SMCJ Series



## Surface Mount Voltage Suppressors

### SMC/DO-214AB

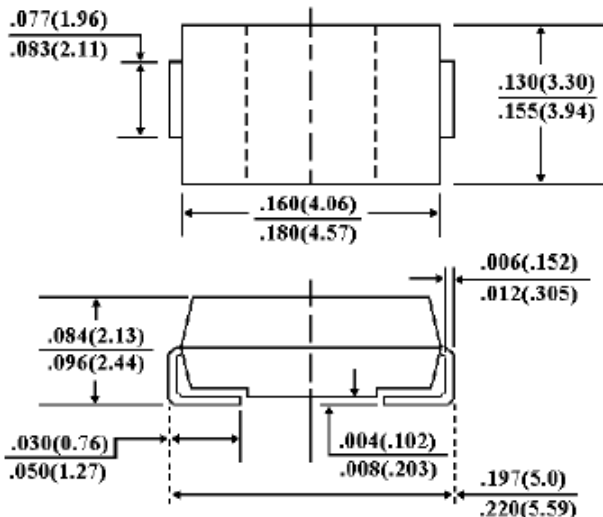


Dimensions in inches and (millimeters)

### Mechanical Data

- Case**
- : JEDEC DO-214AA moulded plastic over passivated junction (SMCJ).
  - : JEDEC DO-214AB moulded plastic over passivated junction (SMBJ).
- Terminals**
- : Solder plated, solderable per MIL-STD-750, Method 2026.
- Polarity**
- : Indicated by cathode band.
- Standard packaging**
- : 16mm tape per (EIA 481) (SMCJ).
  - : 12mm tape per (EIA 481) (SMBJ).
- Weight:**
- : 0.007 ounce, 0.21 gram (SMCJ).
  - : 0.003 ounce, 0.093 gram (SMBJ).

### SMB/DO-214AA



Dimensions in inches and (millimetres)



### Maximum Ratings and Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000µs waveform (Note 1 & 2 - Fig 1)	$P_{PPM}$	Minimum 600	Watts
Peak Pulse Current on 10/1000µs waveform (Note 1 - Fig 3)	$I_{PPM}$	-	Amps
Peak forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method - Note 2 & 3)	$I_{FSM}$	100.0	Amps
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

#### Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25^\circ\text{C}$  per Fig. 2.
2. Mounted on 8.0mm<sup>2</sup> copper pads to each terminal (SMCJ).  
Mounted on 5.0mm<sup>2</sup> (.013mm thick) land areas (SMBJ).
3. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.

### MAXIMUM RATINGS AND CHARACTERISTIC CURVES

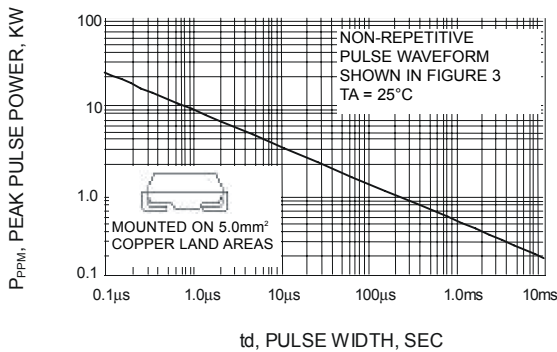


Fig. 1-PEAK PULSE POWER RATING CURVE

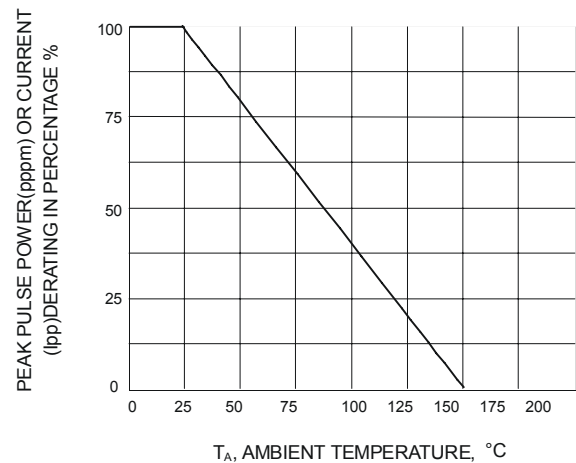


Fig. 2-PULSE DERATING CURVE

# SMBJ / SMCJ Series



## Surface Mount Voltage Suppressors

### MAXIMUM RATINGS AND CHARACTERISTIC CURVES

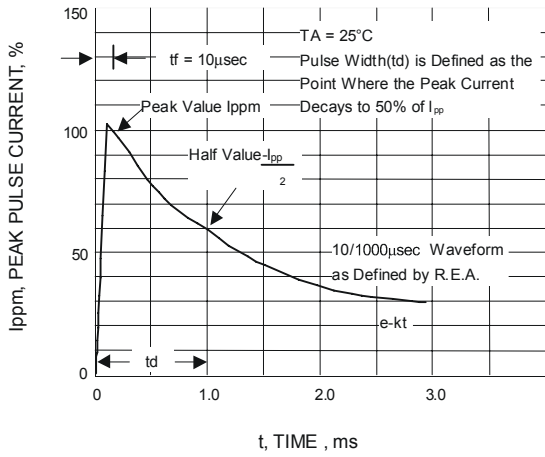


Fig. 3-PULSE WAVEFORM

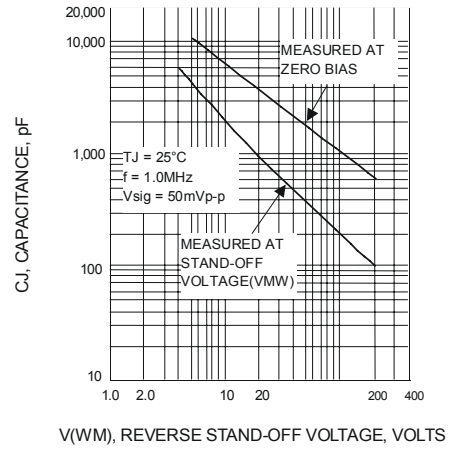


Fig. 4-TYPICAL JUNCTION CAPACITANCE

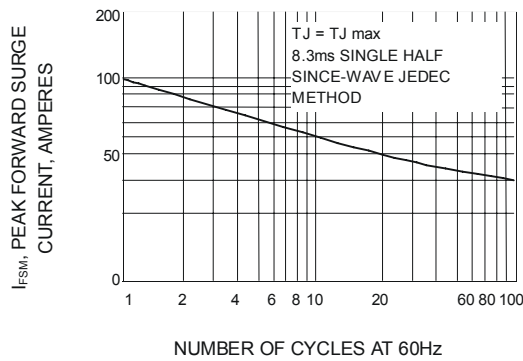


Fig. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

# SMBJ / SMCJ Series



## Surface Mount Voltage Suppressors

### Uni-Directional 600 Watt Surface Mount TVS

Device Marking Code	Stand-Off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at IT	Breakdown Voltage $V_{br}$ (V) Maximum at IT	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{PP}$ (A)	Part Number
KE	5.0	6.4	7.25	10	9.2	65.2	SMBJ5.0A
KP	7.5	8.33	9.58	1	12.9	46.5	SMBJ7.5A
LE	12.0	13.3	15.3		19.9	30.2	SMBJ12A
LM	15.0	16.7	19.2		24.4	24.0	SMBJ15A
LZ	24.0	26.7	30.7		38.9	15.4	SMBJ24A
MK	30.0	33.3	38.3		48.4	12.4	SMBJ30A

### Uni-Directional 1500 Watt Surface Mount TVS

Device Marking Code	Stand-Off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at IT	Breakdown Voltage $V_{br}$ (V) Maximum at IT	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{PP}$ (A)	Part Number
GDE	5	6.4	7.25	10	9.2	163.0	SMCJ5.0A
GDG	6	6.67	7.67		10.3	145.6	SMCJ6.0A
GDV	9	10.0	11.5	1	15.4	97.4	SMCJ9.0A
GEE	12	13.3	15.3		19.9	75.3	SMCJ12A
GEM	15	16.7	19.2		24.4	61.5	SMCJ15A
GEX	22	24.4	28.0		35.5	42.2	SMCJ22A
GFM	33	36.7	42.2		53.3	28.1	SMCJ33A
GFX	48	53.3	61.3		77.4	19.4	SMCJ48A



# SMBJ / SMCJ Series



## Surface Mount Voltage Suppressors

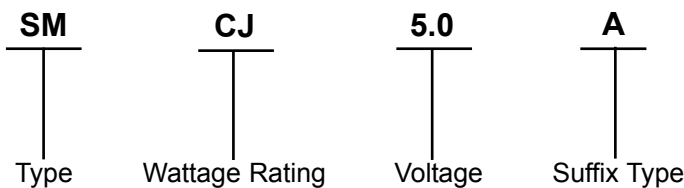
### Bi-Directional 600 Watt Surface Mount TVS

Device Marking Code	Stand-Off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at IT	Breakdown Voltage $V_{br}$ (V) Maximum at IT	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{PP}$ (A)	Part Number
AE	5.0	6.4	7.25	10	9.2	65.2	SMBJ5.0CA
AP	7.5	8.33	9.58	1	12.9	46.5	SMBJ7.5CA
BE	12.0	13.3	15.3		19.9	30.2	SMBJ12CA
BM	15.0	16.7	19.2		24.4	24.0	SMBJ15CA
BZ	24.0	26.7	30.7		38.9	15.4	SMBJ24CA
CK	30.0	33.3	38.3		48.4	12.4	SMBJ30CA

### Bi-Directional 1500 Watt Surface Mount TVS

Device Marking Code	Stand-Off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at IT	Breakdown Voltage $V_{br}$ (V) Maximum at IT	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{PP}$ (A)	Part Number
BDE	5	6.4	7.25	10	9.2	163.0	SMCJ5.0CA
BDG	6	6.67	7.67		10.3	145.6	SMCJ6.0CA
BDV	9	10.0	11.5	1	15.4	97.4	SMCJ9.0CA
BEE	12	13.3	15.3		19.9	75.3	SMCJ12CA
BEM	15	16.7	19.2		24.4	61.5	SMCJ15CA
BEX	22	24.4	28.0		35.5	42.2	SMCJ22CA
BFM	33	36.7	42.2		53.3	28.1	SMCJ33CA
BFX	48	53.3	61.3		77.4	19.4	SMCJ48CA

### Part Number Explanation:



- Wattage Rating** : BJ = 600W and CJ = 1500W.
- Voltage** : 5.0, 6.0, 7.5, 9.0, 12, 15, 22, 24, 30, 33 and 48V.
- Suffix Type** : A = Uni-directional and CA = Bi-directional.



# SMBJ / SMCJ Series

## Surface Mount Voltage Suppressors



### Notes:

### International Sales Offices:



**AUSTRALIA – Farnell InOne**  
Tel No: ++ 61 2 9645 8888  
Fax No: ++ 61 2 9644 7898



**FINLAND – Farnell InOne**  
Tel No: ++ 358 9 560 7780  
Fax No: ++ 358 9 345 5411



**NETHERLANDS – Farnell InOne**  
Tel No: ++ 31 30 241 7373  
Fax No: ++ 31 30 241 7333



**SWITZERLAND – Farnell InOne**  
Tel No: ++ 41 1 204 64 64  
Fax No: ++ 41 1 204 64 54



**AUSTRIA – Farnell InOne**  
Tel No: ++ 43 662 2180 680  
Fax No: ++ 43 662 2180 670



**FRANCE – Farnell InOne**  
Tel No: ++ 33 474 68 99 99  
Fax No: ++ 33 474 68 99 90



**NEW ZEALAND – Farnell InOne**  
Tel No: ++ 64 9 357 0646  
Fax No: ++ 64 9 357 0656



**UK – Farnell InOne**  
Tel No: ++ 44 8701 200 200  
Fax No: ++ 44 8701 200 201



**BELGIUM – Farnell InOne**  
Tel No: ++ 32 3 475 2810  
Fax No: ++ 32 3 227 3648



**GERMANY – Farnell InOne**  
Tel No: ++ 49 89 61 39 39 39  
Fax No: ++ 49 89 613 59 01



**NORWAY – Farnell InOne**  
Tel No: ++ 45 44 53 66 66  
Fax No: ++ 45 44 53 66 02



**UK – BuckHickman InOne**  
++ 44 8450 510 150  
++ 44 8450 510 130



**BRAZIL – Farnell-Newark InOne**  
Tel No: ++ 55 11 4066 9400  
Fax No: ++ 55 11 4066 9410



**HONG KONG – Farnell-Newark InOne**  
Tel No: ++ 852 2268 9888  
Fax No: ++ 852 2268 9899



**PORTUGAL – Farnell InOne**  
Tel No: ++ 34 93 475 8804  
Fax No: ++ 34 93 474 5288



**UK – CPC**  
++ 44 8701 202 530  
++ 44 8701 202 531



**CHINA – Farnell-Newark InOne**  
Tel No: ++86 10 6238 5152  
Fax No: ++86 10 6238 5022



**IRELAND – Farnell InOne**  
Tel No: ++ 353 1 830 9277  
Fax No: ++ 353 1 830 9016



**SINGAPORE – Farnell-Newark InOne**  
Tel No: ++ 65 6788 0200  
Fax No: ++ 65 6788 0300



**EXPORT – Farnell InOne**  
Tel No: ++ 44 8701 200 208  
Fax No: ++ 44 8701 200 209

For enquiries from all other markets



**DENMARK – Farnell InOne**  
Tel No: ++ 45 44 53 66 44  
Fax No: ++ 45 44 53 66 06



**ITALY – Farnell InOne**  
Tel No: ++ 39 02 93 995 200  
Fax No: ++ 39 02 93 995 300



**SPAIN – Farnell InOne**  
Tel No: ++ 34 93 475 8805  
Fax No: ++ 34 93 474 5107



**ESTONIA – Farnell InOne**  
Tel No: ++ 358 9 560 7780  
Fax No: ++ 358 9 345 5411



**MALAYSIA – Farnell-Newark InOne**  
Tel No: ++ 60 3 7873 8000  
Fax No: ++ 60 3 7873 7000



**SWEDEN – Farnell InOne**  
Tel No: ++ 46 8 730 50 00  
Fax No: ++ 46 8 83 52 62

<http://www.farnellinone.com>

<http://www.buckhickmaninone.com>

<http://www.cpc.co.uk>

**Disclaimer** This data sheet and its contents (the "Information") belong to the Premier Farnell Group (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2004.

